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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JEFFREY EARL TELSCHOW

Appeal 2010-012115
Application 10/534,156
Technology Center 1600

Before DONALD E. ADAMS, JEFFREY N. FREDMAN, and
STEPHEN WALSH, Administrative Patent Judges.

FREDMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a process for removal of long-chain aliphatic amide impurities from a solution. The Examiner rejected the claims as anticipated and obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

Statement of the Case

The Claims

Claims 1-20 are on appeal. Independent claim 1 is representative and reads as follows:

1. A process for the removal of long-chain aliphatic amide impurities from a solution of said amides and fatty acid-derived nitriles which comprises washing said solution with an amount of a strong acid effective to remove the amide as a salt in the acid layer, separating said acid layer from said solution leaving an acid-treated fatty acid-derived nitrile substantially free from said amide impurities.

The issues¹

A. The Examiner rejected claims 1-7, 10-12, and 13-19 under 35 U.S.C. § 102(b) as anticipated by Frank² (Ans. 3-4).

B. The Examiner rejected claims 8, 9, and 20 under 35 U.S.C. § 103(a) as obvious over Frank (Ans. 4-5).

A. 35 U.S.C. § 102(b) over Frank

The Examiner finds that Frank teaches “removal of long chain aliphatic amides from a solution of the amide and nitrile. The amide is protonated by acid addition. Amide ions are transferred to the acid phase. The nitrile having a reduced content of impurities (i.e. amides) is separated from the acid reaction mixture” (Ans. 3). The Examiner finds that Frank teaches that the “purified nitrile is re-slurried with fresh clay (i.e. adsorbent). See columns 3-5 for a general description; examples I and II in columns 6-8 for specific embodiments” (Ans. 4).

¹ The Examiner withdrew the rejection under 35 U.S.C. § 112, second paragraph (see Ans. 3).

² Frank et al., US 4,575,434, issued Mar. 11, 1986.

Appellant contends that “Frank does not disclose the formation of an acid layer, or the subsequent separation of same from the nitrile” (App. Br. 10).

The issue with respect to this rejection is: Does the evidence of record support the Examiner’s conclusion that Frank teaches a step of “separating said acid layer from said solution leaving an acid-treated fatty acid-derived nitrile substantially free from said amide impurities”?

Findings of Fact

1. The Specification teaches that “[a]fter the nitrile is made, 0.5 to 3 wt% of dilute H_2SO_4 (approximately 50-70%), with or without 0.5 to 5% of an optional filter aid, is stirred in at room temperature and atmospheric pressure for a time effective for the removal of the amide impurities.” (Spec. 7, ll. 4-6).
2. The Specification teaches that the “optional filter aid may be such things as clay, silica or diatomaceous earth. Typically, after about 30 minutes, the amide impurity is removed into the lower, dark acid layer, or is adsorbed onto the filter aid, probably as a salt” (Spec. 7, ll. 7-9).
3. The Specification teaches that a “key step in the process of the present invention is the separation of the nitriles having a reduced content of impurities and improved color from the reaction mixture. . . . one may add an adsorbent along with the acid treatment and filter out the adsorbent/amide salt/excess acid by means of one or more filter assemblies . . . either pressure or vacuum filtration may be employed with any suitable filtering medium” (Spec. 7, l. 21 to 8, l. 2).

4. Frank teaches a “process for the removal of long-chain aliphatic amides from a solution of said amides and fatty acid derived nitriles comprising forming a reaction mixture comprising said solution, a layered mineral comprising an aluminum silicate having exchangeable alkaline or alkaline earth cations on the surfaces of said layers and an acid having an acid strength sufficient to protonate said amides” (Frank, col. 14, ll. 20-28).

5. Frank teaches that the “reaction mixture will be heterogeneous with nitrile, acid and solid phases” (Frank, col. 3, ll. 24-25).

6. Frank teaches that the reaction of the present invention is best carried out by means of a slurry of the mineral and acid in the nitrile-amide solution. Bentonite clay is an excellent source of the mineral and readily disintegrates in a liquid medium to the finely divided particles conducive to slurry formation. The acid, such as sulfuric, should be added to the slurry in the form of fine droplets so as to avoid charring and provide a good initial dispersion.

(Frank, col. 4, ll. 46-53).

7. Frank teaches “separation of the nitriles having a reduced content of impurities from the reaction mixture. We believe this to be best accomplished by means of one or more vacuum filter assemblies” (Frank, col. 4, ll. 57-60).

8. Frank teaches that the “selection of acid may now be in terms of those acids which achieve a desired degree of amide removal” (Frank, col. 13, ll. 4-5).

Principles of Law

“It is well settled that a prior art reference may anticipate when the claim limitations not expressly found in that reference are nonetheless inherent in it.” *In re Cruciferous Sprout Litigation*, 301 F.3d 1343, 1349 (Fed. Cir. 2002). “It matters not that those of ordinary skill heretofore may not have recognized these inherent characteristics.” *Id.* at 1350. See, e.g., *MEHL/Biophile Int’l Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed.Cir.1999) (“Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates.”)

Analysis

The Specification teaches that removal of impurities is performed by addition of sulfuric acid and an optional filter aid such as clay, where “after about 30 minutes, the amide impurity is removed into the lower, dark acid layer, or is adsorbed onto the filter aid, probably as a salt” (Spec. 7, ll. 7-9; FF 2). The Specification expressly recognizes that separation may be performed two ways, the second of which is that “one may add an adsorbent along with the acid treatment and filter out the adsorbent/amide salt/excess acid by means of one or more filter assemblies . . . either pressure or vacuum filtration may be employed with any suitable filtering medium” (Spec. 7, l. 21 to 8, l. 2; FF 3).

Frank teaches that the

reaction of the present invention is best carried out by means of a slurry of the mineral and acid in the nitrile-amide solution. Bentonite clay is an excellent source of the mineral and readily disintegrates in a liquid medium to the finely divided particles conducive to slurry formation. The acid,

such as sulfuric, should be added to the slurry in the form of fine droplets so as to avoid charring and provide a good initial dispersion.

(Frank, col. 4, ll. 46-53; FF 6). Frank teaches that the presence of an “acid phase” (FF 5). Frank teaches “separation of the nitriles having a reduced content of impurities from the reaction mixture. We believe this to be best accomplished by means of one or more vacuum filter assemblies” (Frank, col. 4, ll. 57-60; FF 7).

In our opinion, when the claims are read in light of the Specification, Frank performs the identical method steps as those claimed. Frank adds sulfuric acid, the acid preferred in instant claim 7, to the solution of amides and fatty acid-derived nitriles (FF 4-5). Frank further separates the amides from the nitriles using a filter aid, specifically clay (FF 6), which is the identical step performed by instant claim 12 as well as a method disclosed in the Specification (FF 2). Frank further teaches that the filtering may be performed with vacuum filtration (FF 7) which is consistent with the methods disclosed by the Specification (FF 3).

Appellant contends that “Frank does not disclose the formation of an acid layer, or the subsequent separation of same from the nitrile” (App. Br. 10).

We are not persuaded. While Frank does not expressly teach that the addition of the sulfuric acid and clay to the mixture results in the formation of an “acid layer”, the formation of this layer is reasonably found to be an inherent result of the addition of the sulfuric acid and clay (see FF 2). The absence of an express teaching is not the same as the absence of the step. Appellant has not provided any evidence that Frank’s process does not result

in the formation of an acid layer, and given the virtual identical nature of the steps disclosed by Frank and the steps found in the Specification, it is reasonable to find that the separation of the acid phase is a necessary result of the operation of the steps disclosed by Frank and the Specification (FF 1-7).

Conclusion of Law

The evidence of record supports the Examiner's conclusion that Frank teaches a step of "separating said acid layer from said solution leaving an acid-treated fatty acid-derived nitrile substantially free from said amide impurities".

B. 35 U.S.C. § 102(b) over Frank

Appellant correctly notes that "the examiner still has the initial burden of supporting the rejection of claims 8, 9 and 20 under section 103. Merely stating that claims 1 and 15 remain rejected under section 102 is not enough to support the present rejection under section 103" (App. Br. 11-12).

However, we are not persuaded since the Examiner has met this burden. The Examiner, using similar language in the initial non-final rejection mailed June 9, 2008, and in the Answer, provides a specific reason why the different strengths of sulfuric acid and conditions would have been obvious (see Ans. 4-5). The Examiner finds that the ordinary artisan "would be motivated, by the implicit disclosure in the reference, to practice the process with different acid strengths with [a] reasonable expectation of success" (Ans. 5). The Examiner then cites MPEP 2144.05 II A regarding routine experimentation (see Ans. 5).

We agree with the Examiner that in the absence of evidence to the contrary, modification of the amount of sulfuric acid or other conditions used in Frank would be routinely optimizable variables. Frank specifically teaches that the “selection of acid may now be in terms of those acids which achieve a desired degree of amide removal” (Frank, col. 13, ll. 4-5; FF 8). See *In re Aller*, 220 F.2d 454, 456 (CCPA 1955) (“[I]t is not inventive to discover the optimum or workable ranges by routine experimentation.”)

SUMMARY

In summary, we affirm the rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Frank. Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejection of claims 2-7, 10-12, and 13-19, as these claims were not argued separately.

We affirm the rejection of claims 8, 9, and 20 under 35 U.S.C. § 103(a) as obvious over Frank.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1).

AFFIRMED

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